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dent happening to a wheel should make this necessary. The whole apparatus is connected to the axle, by a vertical socket fastened to it by a clip plate and bolts at each side, with an internal slide, which admits of its being raised or lowered to that distance from the ground, which the nature of the road may render advisable, and a pin, passed across through holes in the socket and slide, secures it in this position.

Mr. Williams mentions in an advertisement, that the preservers are best made of tempered steel, as being lighter, stronger, and more elastic, and need not weigh more than thirty pound a pair, and that they were used in the first instance for private security and convenience in travelling daily from Blackheath to London; but as much injury has been received by many persons from the accidents which the preservers are designed to prevent; he was desirous of making the benefit universal. Licenses may be had from Mr. Williams for using these preservers at one guinea per annum, or ten guineas perpetual.

*Observation.* This contrivance has a strong analogy to the *idle wheels* of the Rev Mr. Milton's patent-coach; the slide in the one being designed for the same purpose as the wheel in the other. The slides, however, seem preferable on account of their greater lightness and less cost; for though an idle wheel would render the motion easier, and be better if the carriage was to be supported by it for any considerable distance, yet as few, if any cases would occur in which this would be necessary for more than a few perches, these circumstances in its favour do not seem of much importance.

*Patent of Mr. William Shakespear and Mr. Thomas Osler of Birmingham, Glass-chandelier manufacturers, for a new method of constructing glass or paste drops for chandeliers and Lustres.* Dated July, 1810.

The patentees direct, that, in making drops for lustres in their method, after the drop is formed in the usual manner, the part of it intended to receive the metallic loop, or piece of metal

of which such loop is intended to be made, is re-melted or so far softened by heat as to admit of the metallic loop, or piece of metal, being pressed or worked into it; which is to be done by a pair of pincers or other proper tool. Or the loop, being previously inserted in the mould or die, may be fixed in the act of moulding or forming the drop, but the patentees prefer the former method as being most secure. They also think silver or copper to be best for the loops. Sometimes a small notch or groove is cut in that part of the loop inserted in the glass, but this they do not think to be essential.

*Observation.* The effect of this invention will be to reduce the price of the beautiful ornaments for apartments, in which these drops are used; for in forming drops in the old method a considerable part of the labour, and risk of breaking them, was incurred in drilling the holes through them for the loops, which will be entirely saved by the patent method, above described.

*Patent of Mr. Edward Shorter of Wapping, London, for a method of working Pumps in Ships.*

Dated March, 1803.

This method of working pumps is effected by a wheel similar to that of a smoke jack, attached to a bar, which passes through it at right angles; which bar is connected by a chain to the axis of a crank, that works the pump rod. The axis of the crank is placed in the direction of the keel, and the impelling wheel placed in the sea is drawn after the ship at the stern, where it will turn round with a velocity proportioned to that of the progress of the ship; a round bar passing through a proper socket in the stern of the ship, and furnished with universal joints at each end, connects the external to the internal parts of the apparatus.

Mr. Shorter also mentions that his plan may be applied to working pumps, by exposing a fly of proper dimensions to the action of the wind instead of the water, with such alterations in the structure of the apparatus as the case may require.